

Remarks

The present application is a continuation of application Serial No. 08/904,855, filed on August 1, 1997 ("the '855 parent application"). The specification has been amended to reflect such a priority claim. It has also been amended to correct typographical errors. Marked-up copies of pages 1, 13, 20 and 31 of the specification reflecting the amendments are enclosed. In addition, Figs. 14, 16 and 18 have been amended to correct typographical errors. Accordingly, marked-up copies of these figures with corrections in red are enclosed, along with a Letter to the Official Draftsperson.

Applicant has cancelled claims 1-20. Claims 21-59 have been added which are drawn to various aspects of the invention. These claims, as added, are patentable over prior art for reasons stated by the Examiner in the Notice of Allowability in the '855 parent application. Allowance of the present application is thus earnestly solicited.

In addition, applicant brings to the Examiner's attention the references listed on the attached Form PTO-1449 (12 pages). Pursuant to 37 C.F.R. 1.98(d), copies of these references are not enclosed as they were previously cited by or transmitted to the U.S. Patent and Trademark Office in the '855 parent application. It is respectfully requested that the listed references be made of record in the present application.

Respectfully,

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Enclosures

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**CENTRALIZED CONTROL AND  
MANAGEMENT SYSTEM FOR AUTOMOBILES**

*This application is a continuation of application Serial No. 08/904,855, filed on August 1, 1997.*

**Statement of Related Applications**

The present application is related to copending, 5 commonly assigned U.S. Patent Application Serial No. 6,009,355. 08/789,934, entitled "Multimedia Information and Control System for Automobiles."

**Field of the Invention**

The invention relates generally to control and 10 management systems and, more particularly, to a system for use in an automobile which facilitates the user's control and management of various vehicle functions.

**Background of the Invention**

The concept of an automated highway system (AHS) 15 has been fervently pursued. Although the interpretation of the AHS concept varies from one person to another, people implementing the concept are incorporating more and more technology into an automobile to improve its operations, better its safety measures, and add conveniences to the 20 vehicle user.

A prevalent interpretation of the AHS concept is hands-free driving. To that end, magnets have been buried along an experimental automated highway, and automobiles have been equipped with magnetometers to sense the magnets 25 to guide the moving vehicles, thereby obviating manual steering. In another approach, an automobile is equipped with a video system in which cameras monitor different segments of the road ahead and feed images to on-board computers that control steering, acceleration and braking of 30 the vehicle.

detected by processor 103, the user is elicited for information concerning the destination, any intermediate stops, etc. Such elicitation is realized by posing questions on display 205 and/or by uttering those questions 5 using a synthesized voice through an audio output. The user then provides verbal responses thereto through an audio input. Relying on standard speech recognition circuitry in system 100, navigation system 329 recognizes and registers the responses. Using stored map information, system 329 10 then provides on display 205 a suggested route leading to the destination. Furthermore, based on the knowledge of the vehicle's instantaneous speeds and directions, system 329 is capable of verbally and visually directing the user to the destination.

15 Because of the limited capacity of the storage for the map information or because the map information needs to be updated from time to time, it will be appreciated that system 329 would instead obtain the necessary, latest map information from an on-line service through a cellular or 20 wireless connection.

In addition to directing the user to a given destination, system 329 through processor 103 cooperates with weather system 332 and traffic system 336 to be described. In accordance with an aspect of the invention, 25 systems 332 and 336 jointly ~~provide~~ on display 205 updates regarding traffic <sup>congestions</sup> ~~congestion~~, weather conditions, hazards, highway warnings along the route suggested by system 329.

Fig. 6 illustrates one such navigation screen on display 205. On this screen, indicator 450 marks the 30 current position of the vehicle. The suggested route (shown in boldface) by navigation system 329 is numerically denoted 453. Traffic indicator 455 is provided by system 336 to

complete stop, automatic parking routine 500 stored in memory 107 is invoked. When instructed by this routine, which is depicted in Fig. 9, processor 103 causes display 205 to show thereon the positions of the surrounding objects 5 relative to the subject vehicle, as indicated at step 543.

At this point, the user may touch the screen of display 205 to define a parking space into which the vehicle is to be parked. In order to carry out parallel parking effectively, this parking space needs to be reasonably 10 suitable for the vehicle to be maneuvered into. Processor 103 at step 547 computes the coordinates defining the selected parking space. Knowing the respective coordinates of the subject vehicle, the surrounding objects and the parking space, processor 103 at step 551 determines the 15 instants at which and extents to which the vehicle is to be accelerated and decelerated in the ~~cause~~ <sup>course</sup> of the parking, and at step 553 the instants at which and extents to which the steering wheel is to be turned and returned. At step 555, processor 103 causes a computer simulation to be performed 20 using the speed and steering parameters just determined to verify that the automatic parking is feasible, without running into any surrounding objects. At that point, the user may depress ANIMATION key 219j to view on display 205 the simulation in which the subject vehicle moves into the 25 user defined parking space in an animated fashion. At step 559 processor 103 determines whether the vehicle can be properly parked under the above conditions. If processor 103 determines that the automatic parking is unrealizable, processor 103 informs the user of same, as indicated at step 30 563. In response, the user needs to select another parking space or may attempt to park the vehicle manually.

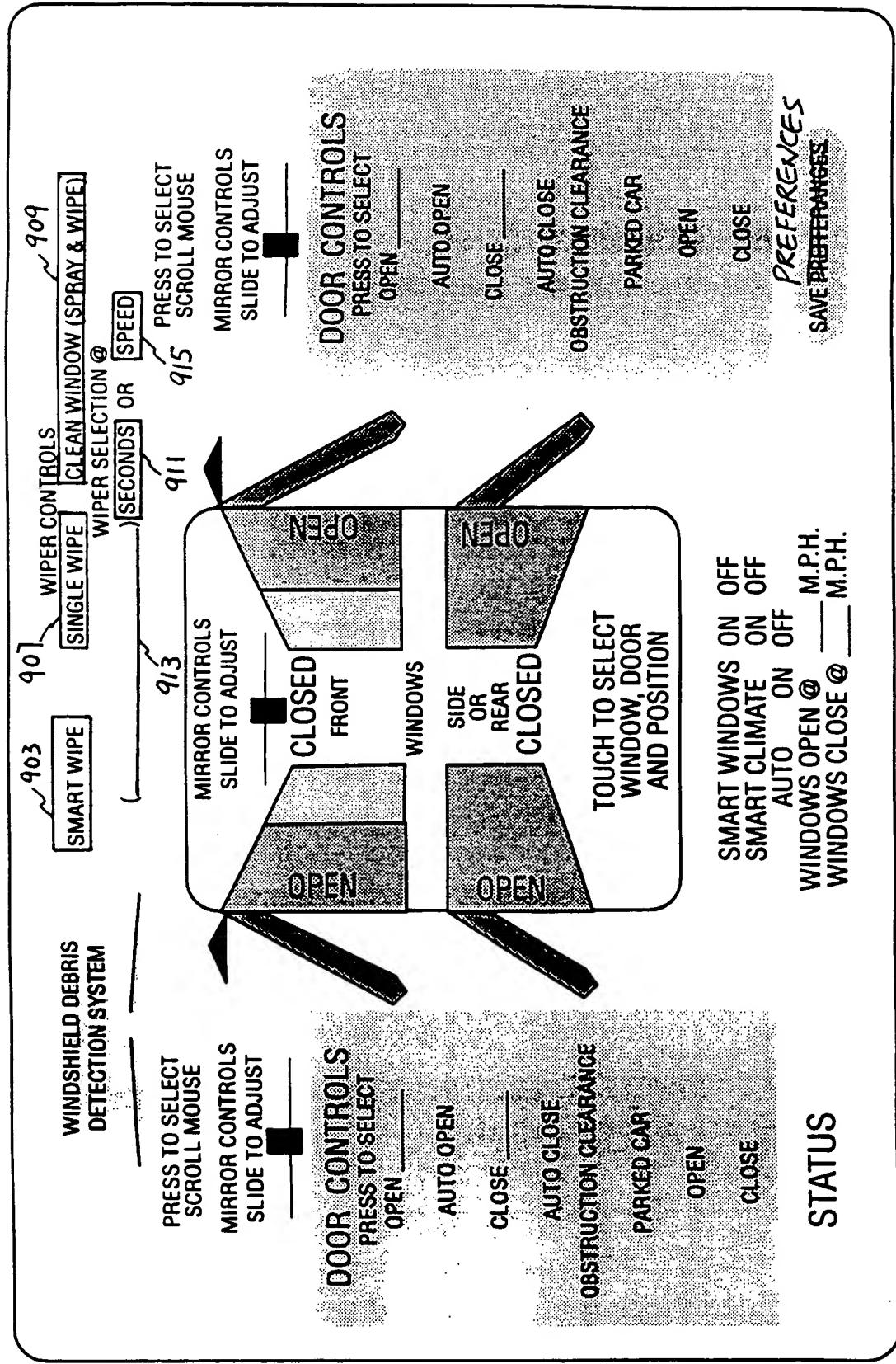
Otherwise if processor 103 determines that the

window, respectively. Indicators 821, 823, 825 and 827 on the hypotenuses of the respective triangles indicate the extents to which the corresponding windows are open. The user may touch the indicator on the screen to raise (or lower) it along the hypotenuse. In response, processor 103 causes access control subsystem 139 to close (or open) the window accordingly. Alternatively, the user may operate indicator device 227 or 229 to point at one of the indicators and drag same along the hypotenuse to control the corresponding window opening.

In addition, a SMART WINDOWS function on sub-screen 840 may be selected by touching ON option 842 on the screen or pointing and clicking at same. With the SMART WINDOWS function selected, for example, subsystem 139 causes the windows to be ~~completely~~ closed upon a shut-off of the engine or an activation of air conditioning. When coupled with a SMART CLIMATE function to be described, the SMART WINDOWS function includes slightly opening selected windows to vent out excess heat prior to the user's arrival, thereby pre-conditioning the vehicle. In addition, when an AUTO function on sub-screen 840 is selected, the user can specify the vehicle speed at which the driver side front window is made completely open or closed. By touching on the screen, or pointing and clicking at blank 845 or blank 850, choices of speed are listed beneath the blank. For example, by selecting a zero speed for blank 845 ahead of a toll plaza, the window in question would be completely opened when the vehicle stops at a toll booth, thereby conveniently allowing the user to pay tolls.

The screen of Fig. 13 may also be invoked by depressing DOORS key 232b. Flaps 851, 853, 855 and 857 in Fig. 13 correspond to the driver side front door, driver

Fig. 14



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Fig. 16

SHIFT

QUICK TIPS VOICE VISUAL

VISUAL

voice

QUICK TIPS

